addition, a Class I wetland (SYE-6) and a Class II wetland (SYW-II) are located approximately 1 mile east and southwest, respectively (Ref. 27).

Presently, there are rolling hills on site and the elevation is similar to the surrounding terrain. The site is about 10 to 15 feet higher in elevation than Ley Creek.

A drainage ditch drains surface water from the site through a covered 48-inch culvert pipe south to Ley Creek. This was constructed as part of the final closure operations in 1981 and 1982, to restore proper water flow after refuse landfilling impaired or blocked the site's original drainageways.

In general, there is a grassy cover, but small piles of debris and dirt fill on the banks of the drainage ditch lack adequate grass cover. Clusters of tall, reedy wetlands vegetation were present in numerous areas on site, including an area on top of a graded hill, and in a dry elongated depression running east-west on the south section of the site. During E & E's site inspection on May 2, 1991 a leachate outbreak was noted near Ley Creek's bank on the landfill side (see Figure 1-2). Ley Creek is a Class D stream in the segment from Onondaga Lake to the sewage treatment plant's outfall just downstream of the Salina Town Landfill. From the outfall upstream to South Branch (including the section adjacent to the site), Ley Creek is a Class B stream, with no drinking water use (Ref. 33). There are approximately eight permitted dischargers into Ley Creek, with permits limiting freon extractable oil, treated wastewater, suspended solids, nitrogenous compounds, biological oxygen demand, and heavy metals (Ref. 9). Onondaga Lake, located approximately 1 mile southwest of the site, is not utilized as a drinking water source, and has had a history of serious industrial pollution (Refs. 9, 10).

A rare plant, the cornel-leaved aster (Aster infirmus), was observed within 1 mile of the Salina Town Landfill in 1949 (Ref. 28). This plant may still be present in the vicinity, if suitable habitat exists. However, since this plant grows in dry woods and slopes in inland areas, and the Salina Town

Landfill site is in a characteristically wet open area, it is unlikely that this plant would grow on site or nearby (Ref. 35).

A series of powerlines, sewer lines, and a pipeline predate the landfill; filling operations have historically occurred below and above these utility installations. Six elevated manholes were observed during the E & E site inspection on May 2, 1991.

The landfill is located in an industrial area, and there are several industrial plants and waste disposal areas in the vicinity. The GM Fisher Guide plant is located approximately 3 miles upstream of the Salina Town Landfill, and the Ley Creek dredging spoils site is located approximately 2 miles upstream. A Syracuse city dump is located less than 1 mile downstream, and a waste disposal area is located approximately 1 mile south, adjacent to the Crouse Hinds Company at 7th North Street and Wolf Street (Ref. 29).

There are residential areas approximately 500 feet to the northeast, 4,100 feet to the west, and 5,600 feet to the north (Ref. 29).

4.3 SITE HYDROLOGY

The Salina Town Landfill is in the recharge area of the Tully aquifer, a shallow sand and gravel aquifer. The groundwater flow is south-southwest toward Ley Creek, and groundwater depths in the vicinity are reported to be as shallow as 1 foot from the ground surface (Ref. 29). Well-drilling logs from on-site drilling found groundwater at 4 feet (Ref. 6). There are no groundwater drinking wells within a 4-mile radius of the site (Ref. 29). Drinking water for Syracuse urban and suburban areas is obtained from Skaneateles Lake, Otisca Lake, and Lake Ontario (Ref. 31).

Bedrock in the vicinity of the Salina Town Landfill is Vernon shale of Silurian age. Vernon shale is the oldest unit of the Salina group, and is composed of a great wedge of bright red shale, with local lenticels of green shale, dolomite, sandstone, or gypsum. The highest beds of the Vernon shale are typically green, locally interbedded with a few thin shaley

dolomites. The Vernon shale is a maximum of 500 to 600 feet thick in the vicinity of Syracuse. Progressing westward, the highest red beds are found successively lower in the section (Ref. 30).

Soil on site is listed by the United States Department of Agriculture (USDA) Soil Conservation Service as "made land" (Ref. 32), and on-site well driller logs indicate a fine sand and silt soil is present (Ref. 6). The soil survey lists the soils surrounding the site as Carlisle muck, a deep, very poorly drained hydric soil formed in woody organic deposits in swampy depressions, mainly on the lake plains (Ref. 32).

4.4 CONTAMINATION ASSESSMENT

A documented 640 tons of paint sludge (EPA Waste Code D002) and 22 tons of waste paint thinner and reducer (EPA Waste Code F003) were disposed of at the Salina Town Landfill by GM Fisher Guide Division from 1952 to 1985 (Ref. 11). The amount of PCB-laden wastes (EPA Waste Code B001) taken from the GM Fisher Guide Division to the Salina Town Landfill is unknown, and the total amount of PCB wastes generated by this plant prior to Salina Town Landfill's close in 1975 is also unknown. Available estimates of the amount of generated PCB wastes sent to county landfills refer to the time period of 1979 to 1983, after the Salina Town Landfill site stopped accepting wastes. No estimates are available for the company's PCB-waste volume prior to 1979 (Refs. 14, 17).

A documented 4 cubic yards of flyash from the GM Fisher Guide Division were taken to the Salina Town Landfill in a limited, 1-week inventory period; the total volume of flyash deposited in the landfill is unknown. Flyash was generated at the Powerhouse from the combustion of coal in boilers used to produce steam. Analysis reports from the relevant time for the Salina Town Landfill no longer exist. A Flyash analysis report from 1986 showed the material to be nonhazardous.

Buffing sludge was generated as follows:

1. Until 1973, an activity at the plant was the fabrication of wheel discs and hubcaps. After the discs and hubcaps were formed in the press line and heat treated as required, they were buffed using cloth buffing wheels. A buffing compound was used during the process. The sludge was formed from the excess buffing compound which built up on and under the buffing units. The buffing wheels were made of cloth and as they wore down, the fibers became part of the sludge. In addition, some automatic buffing units had water wash centerspray units which scrubbed the exhaust air. Periodically, the water was drained and the remaining sludge was disposed of as buffing sludge.

2. Until 1971-72, the plant had a die-casting process. As with the wheel disc line, these parts were buffed in a similar manner and sludge generated.

3. For approximately two years around 1959, an extruding process was used for aluminum moldings which were also buffed creating a sludge.

No records have been found which note the types or makeup of the buffing compounds. Wheel discs and hubcaps were made of stainless steel, steel, and brass. Zinc was used in the die-casting process (Ref. 37).

In addition, foundry wastes from the Crouse Hinds plant were frequently accepted at the Salina Town Landfill (Ref. 15). Foundry sand may be considered a hazardous waste if it exhibits the characteristic of Ep toxicity.

The fill material used for daily cover and for landfill closure operations may have included PCB-contaminated soil, since some of the soil was obtained from the Ley Creek dredgings (Refs. 12, 13). Sewage sludge from the Ley Creek sewage treatment plant was used as cover on the landfill for at least a short time, ending in March 1970 (Ref. 18).

The environmental sampling history at the Salina Town Landfill site includes two soil and three surface water samples collected by NYSDEC on

March 20, 1986; one soil and one surface water sample collected on the same date by OCHD; five surface soil and three surface water and sediment samples, including upstream and downstream samples in Ley Creek, collected by EPA on July 1, 1986; one groundwater and seven subsurface soil samples collected by NYSDEC in May and June 1987; and one subsurface soil sample collected by Calocerinos & Spina Engineers, P.C. on May 22, 1987. See Figure 1-2 for sampling locations (Refs. 1, 4, 6, 7, 8, 9).

The samples collected in 1986 by NYSDEC and OCHD were analyzed only for PCBs. No PCBs were detected in any of the water samples, nor were any found in the OCHD soil sample collected from the drainage ditch at the northern border of the site (Ref 8). The soil/sediment samples collected from the south side of the landfill adjacent to Ley Creek contained PCBs (Aroclor-1242) at levels of 3.6 ppm (downstream) and 1.4 ppm (upstream) (Ref. 2). This may indicate some loading of PCBs is occurring from the landfill.

The five soil samples collected by EPA in 1986 were collected from the fill area; two surface water and sediment samples were collected from Ley Creek (upstream and downstream of the landfill); and a third surface water and sediment sample was collected from an on-site drainage ditch (Ref. 2). The results from this sampling effort were used in the NUS Corporation report for EPA (Ref. 1). Because there appeared to be no significant increase of contaminants in the downstream surface water and sediment sample compared to the upstream sample, no surface water release was documented in the NUS Corporation report. NUS Corporation found that soil at the landfill contained numerous polyaromatic hydrocarbons (PAHs), noting in the report that pyrene and fluoranthene were found in excess of 20 ppm. In addition, the analytical data showed levels of fluorene (up to 1,000 μg/kg), phenanthrene (up to 5,700 μg/kg), benzo(a)pyrene (up to 3,300 μg/kg), and acenaphthylene (up to 1,600 μg/kg). One sample had dibenzofuran at 2,300 μg/kg (Ref. 1). Lead (up to 251 mg/kg), cadmium (up

to 11.3 mg/kg), and magnesium (up to 21,390 mg/kg) were also detected at concentrations above the average ranges found in soils in the Eastern United States (Ref. 3). Some volatiles and pesticides were detected at low levels, and PCBs were not detected in any samples (Refs. 1, 2).

The samples collected by NYSDEC in May and June 1987 were concurrent with the Atlantic Testing Company's attempts to drill three monitoring wells on site. Only one well was completed, as drilling for the other two wells encountered wastes in the form of black oil and petroleum saturated soil. Groundwater analytical results for the completed well indicated the presence of volatiles and semivolatiles at trace levels, and the levels of iron (15,900 µg/L) and manganese (473 µg/L) were found to exceed New York State groundwater standards (Refs. 4, 5). No cyanide, pesticides, or PCBs were detected. Since the monitoring well sampled is upgradient of the landfill, and no downgradient counterpart samples were taken, these results are not representative of contamination on or resulting from the landfill.

Subsurface soil samples from the upgradient monitoring well (SW-1) location were analyzed and no dibenzofuran, pesticides, or PCBs were detected. At the abandoned well, SW-2, three samples were collected. The sample collected from 2 to 4 feet was analyzed for dibenzofuran, with traces (subpart per billion level) observed (Ref. 6). In the sample from 5 to 7 feet, PCBs were detected at 11 ppm (Aroclor-1242), and low levels of several semivolatile compounds were detected (Ref. 6). The sample from 7 to 10 feet contained the petroleum saturated soil/waste that was the reason for the hole abandonment. This sample contained PCBs at a concentration of 270 ppm (Aroclor-1242), traces of dibenzofuran, and semivolatiles at levels slightly higher than in the 5- to 7-foot sample (Ref. 6). Also, cadmium (29 mg/kg), chromium (4,060 mg/kg), nickel (1,490 mg/kg), and zinc (1,010 mg/kg) were found at elevated levels compared to the average range of concentrations in soils in the Eastern United States (Ref. 3).

At location SW-3, a sample collected from 2 to 4 feet was analyzed for pesticide/PCBs with none detected, and semivolatiles were present at low levels (Ref. 6). The sample containing the black oil waste material, collected from 10 to 12 feet, was analyzed for dibenzofuran (minute traces found) and for the hazardous substance list. PCBs were present at 4.9 ppm (Aroclor-1242) and low levels of a few volatiles were found. The concentration of cadmium (11 mg/kg) was found to be above the range of average cadmium concentrations in the Eastern United States (Ref. 3).

A soil/sediment sample was collected from SW-2 at the time of drilling by Calocerinos & Spina Engineers, P.C. and was sent to a different lab for analysis. This sample was collected from the 5- to 7-foot interval. Analysis detected Aroclor-1248 at a concentration of 74 mg/kg and cadmium at 3.4 mg/kg (Ref. 7).

During a site inspection and sampling by NUS Corporation on July 1, 1986, no readings above background levels were detected with an OVA and HNu.

During the E & E site inspection on May 2, 1991, no HNu or minirad readings were significantly above background levels. Some exposed debris (automobile parts, roofing shingles, scrap-wood pieces) was found scattered along the powerline running east-west across the south portion of the landfill. In a downgradient area bordering Ley Creek, a seep-like puddle of rust-colored liquid was observed. There was an old car battery on the ground near the center of the site, probably a result of illegal dumping. An unlabeled, dented 55-gallon drum was found standing near the western corner of the site. Another drum was found crushed and protruding from the ground in the southeast portion of the site.

Due to the extensive urban, industrial, and commercial development in the 30 square miles of the Ley Creek drainage basin, and the associated urban storm runoff and industrial effluent discharges to the creek, Ley Creek historically has had pollution problems. In addition, a PCB-contaminated area containing piles of Ley Creek dredge spoils is located on the banks

upstream, approximately 2 miles from the Salina Town Landfill. PCB concentrations in soils from the Ley Creek dredged material area were detected at up to 180 ppm, and the mass transport of PCBs into Ley Creek from the dredging piles was estimated to be 0.15 gm/day. The PCBs are thought to have been introduced into Ley Creek via an industrial effluent outfall to the creek (Ref. 9).

Additionally, a bioaccumulation study was performed on a small amount of fish samples (14 fish) from Ley Creek. PCB concentrations were found at up to 6.8 mg/kg (Aroclors-1248 and -1254), with the highest concentrations found in carp (Ref. 9). PCB-contaminated fish populations were also found in Onondaga Lake, with fish samples containing different Aroclors (-1016, -1254, and -1260) than those found in creek fish (Ref. 9).

NYSDOH issued a health advisory recommending that no fish caught in Onondaga Lake be eaten, due to high chemical levels. This advisory is still in effect (Ref. 10).

5. ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

5.1 HAZARDOUS WASTE DEPOSITION

A documented 640 tons of paint sludge (EPA Waste Code D002), and 22 tons of waste paint thinner and reducer (EPA Waste Code F003) were sent to Salina Town Landfill from the GM Fisher Guide Division, as indicated on the company's hazardous waste generator questionnaire (Ref. 11).

PCB-laden wastes in the form of oil-saturated floor absorbents, which were used to clean up coolant and hydraulic oil leaks, were mixed in with the GM plant's general refuse (cardboard, cafeteria wastes, floor sweepings, etc.), and taken to four county landfills, including the Salina Town Landfill site (Refs. 14, 16). This waste was not inventoried or tracked as hazardous waste on official waste generator documents (Ref. 14). The amount of PCB-laden wastes taken from the GM Fisher Guide Division to the Salina Town Landfill site is unknown, as is the total amount of PCB wastes generated by the company prior to the landfill's closure in 1975 (Ref. 11). All available estimates of PCB-waste volume refer to the time period of 1979 to 1983, after the Salina Town Landfill site stopped accepting wastes (Refs. 11, 16, 17).

In addition, the fill material used for daily cover and for landfill closure operations may have included PCB-contaminated soil, since some of the soil was obtained from the PCB-contaminated Ley Creek dredgings (Refs. 12, 13).

5.2 SIGNIFICANT THREAT DETERMINATION

Since only one of three planned groundwater monitoring wells was installed on site, the sampling results from this upgradient well cannot adequately represent the threat posed to groundwater by the Salina Town Landfill site.

Although leachate outbreaks have been observed on numerous occasions, surface water sampling of Ley Creek upstream and downstream of the Salina Town Landfill site in 1986 did not indicate significant contaminant release from the site to the creek (Ref. 1). It should be noted that Ley Creek and Onondaga Lake are already considered highly polluted. Many sources of surface water pollution contributed to Ley Creek's pollution problems, including numerous industrial effluent discharges, wastewater treatment discharge, the Ley Creek dredging spoils area, urban rainwater runoff, the Syracuse City Landfill, and past PCB effluent discharge by GM Fisher Guide Division (Refs. 9, 10). No PCBs were found in on-site surface water (Refs. 1, 6, 7).

Contamination of soils was confirmed by the surface and subsurface soil and sediment sampling efforts conducted in 1986 and 1987. High levels of PCBs were detected in subsurface, oil-saturated soils on site and in sediment samples from Ley Creek. The PCBs found in Ley Creek sediment cannot be attributed solely to the Salina Town Landfill site, as PCB contamination exists upstream of the site as well as in the site vicinity (Ref. 9). High levels of PAHs and some heavy metals, as well as trace dibenzofurans were also found in soil samples.

Bioaccumulation studies of fish in Ley Creek and Onondaga Lake indicate that fish are contaminated with PCBs, with observed levels of up to 6.8 mg/kg (Ref. 9). Analysis found Aroclors -1248 and -1254 in Ley Creek fish, and Aroclors -1016, -1254, and -1260 in Onondaga Lake fish. PCBs that have been present in the past in GM Fisher Guide Division effluent are Aroclors -1242 and -1248; however, it is presently unknown which Aroclors

existed in the company refuse that went to the Salina Town Landfill site (Ref. 9). There is no evidence, implication, or allegation linking fish PCB-contamination to the Salina Town Landfill site.

The rare plant cornel-leaved aster (Aster infirmus), observed within 1 mile of the site in 1949, is not likely to remain in areas nearby since suitable habitat of dry, wooded areas and slopes does not occur in the immediate vicinity of the Salina Town Landfill site (Ref. 35).

Although Ley Creek and the New York State Thruway act as barriers to site entry on the south and north, the site is accessible to the public via 300 feet of unfenced frontage on Wolf Street. Although evidence of trespassing has been found in the past, no incident was found on record of direct contact with substances on site causing injury or illness to humans or animals (Ref. 29). Although one half-exposed drum and some areas of scattered debris were visible, in general wastes were adequately covered with fill and vegetation during E & E's site inspection in May 1991. Because of the small amount of exposed wastes and easy public access to the site, some threat to public welfare is presumed, but no significant threat is apparent.

5.3 RECOMMENDATIONS

Insufficient information exists at this time to reclassify the Salina Landfill site from Class 2a. A significant quantity of hazardous wastes disposed of at the site has been documented. It is likely that discharges from the site contravene ambient surface water standards and ambient groundwater standards. However, to confirm this assumption, additional surface water, groundwater, and soil samples should be obtained and analyzed.

Although no significant contaminant release to Ley Creek surface water was indicated by sampling results from 1986, leachate was observed near the creek banks during E & E's site inspection in May 1991. Leachate outbreaks in this area are likely to migrate into Ley Creek, especially during

flood periods. Leachate in this area downgradient of the fill has not been sampled or analyzed. Therefore, it is recommended that leachate outbreaks near the creek be sampled and analyzed to determine if contamination exists.

The less-anchored, more erodible soil in areas of inadequate cover and in the tall, reedy vegetation areas on site could migrate via drainageways to Ley Creek. PCBs are of particular concern because they adhere to soil and are thus transported with the soil. To determine if contaminant release to the creek is presently occurring, sampling at the mouth of the drainage outfall to Ley Creek, as well as upstream and downstream sediment sampling, is recommended.

Although there are no users of groundwater as a potable water source within 4 miles of the site, monitoring for possible vertical migration of contaminants to the shallow sand and gravel aquifer is recommended. Sampling results from the single on-site monitoring well are inadequate to characterize the landfill's impacts on groundwater. One or two monitoring wells should be drilled downgradient (south) of the landfill, and sampled concurrently with the existing upgradient well in order to access any contamination contributed by the site.

To aid in the prevention of groundwater contamination from disposed wastes on site, it is also recommended that the wetlands perched on top of the graded hill be allowed to drain via a constructed drainage ditch, minimizing the volume of water infiltrating through the cover to the wastes and possibly leaching to the water table.

Contamination of on-site soils has been demonstrated, and easy public access to the site via Wolf Street may result in injury or illness from direct exposure to on-site substances. Therefore, it is recommended that the landfill frontage on Wolf Street be fenced, and the existing gate should be kept locked.

APPENDIX A

REFERENCES

APPENDIX A

REFERENCES

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REFERENCE 1

02:3409-05/25/91-D1

02-8611-19-ST

FINAL DRAFT
SITE INSPECTION REPORT
AND HAZARD RANKING SYSTEM MODEL
OLD SALINA LANDFILL
TOWN OF SALINA, ONONDAGA COUNTY, NEW YORK

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8611-19
CONTRACT NO. 68-01-7346

(CONTINUATION OF CONTRACT 68-01-6699 AND TDD #02-8606-01)

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

DECEMBER 17, 1986

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

Richard Pagano

RICHARD PAGANO
PROJECT MANAGER

REVIEWED/APPROVED BY

Ronald Naman

RONALD M. NAMAN
FIT OFFICE MANAGER

Salina/Brighton Avenue Landfills - Groundwater

Sampling Points:

SW-1 (Salina Landfill - upgradient well)
SH8773436-04 HSL

BW-4 (Brighton Avenue Landfill - eastern monitoring well)
SH87734036-05 HSL

BW-3B (Brighton Avenue Landfill - western monitoring well)
SH87734036-06 HSL

Salina Landfill - Groundwater

SH87734036-04
(SW-1)

Volatiles (ug/l)

methylene chloride	28	B
acetone	7.9	B,J
benzene	2.0	J
chlorobenzene	2.2	J
ethylbenzene	1.0	J
xylenes (total)	9.2	

Pesticides/PCBs (ug/l)

None detected

Semi-Volatiles (ug/l)

1,4 - dichlorobenzene	2.4	J
naphthalene	3.7	J
bis (2 - ethylhexyl) phthalate	3.4	B,J
N-nitrosodiphenyl amine (1)	41	

Tentative ID Compounds (ug/l)

BNA fraction (total)	237.8
VOA unk. hydrocarbons	48.6

Metals (ug/l)

aluminum	9930
barium	(165)
calcium	408000
chromium	18
copper	28
iron	15900
lead	14
magnesium	T32000
maganese	473
nickel	(29)
potassium	(4650)
sodium	93700
vanadium	(21)
zinc	134

Cyanide (ug/l)

None detected

REFERENCE 5

02:3409-05/25/91-D1

Methods for Chemical Analysis of Water and Wastes (see section 703.1 of this

Water Standards of the American Society for Testing and Materials (see section
(this Title); or

by other methods approved by the commissioner as giving results equal to or
or to methods listed above.

Historical Note

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1976; amd. filed
Nov. 5 1984 eff. Nov. 5, 1984.

.5 Classes and quality standards for ground waters. (a) *Class GA.*

The best usage of class GA waters is as a source of potable water supply. Class
waters are fresh ground waters found in the saturated zone of unconsolidated
osits and consolidated rock or bed rock.

) Quality standards for class GA waters shall be the most stringent of:

(i) the items and specifications applicable to such waters found in this section;

(ii) the maximum contaminant levels for drinking water promulgated by the
ommissioner of Health as found in 10 NYCRR Subpart 5-1, Public Water Supplies or
ny subsequent revision thereto or replacement thereof;

(iii) the maximum contaminant levels for drinking water promulgated by the
dministrator under the Safe Drinking Water Act (see section 705.1 of this Title) and
) CFR Part 141, effective July 1, 1978 (see section 705.1); and

(iv) the standards for raw water quality promulgated by the Commissioner of
ealth as found in 10 NYCRR Part 170, Sources of Water Supply or any subsequent
evision thereto or replacement thereof.

) The following quality standards shall be applicable to class GA waters:

Items	*Specifications*
a) Sewage, industrial waste or other wastes, taste or odor producing substances, toxic pollutants, thermal discharges, radioactive substances or other deleterious matter.	None which may impair the quality of the ground waters to render them unsafe or unsuitable for a potable water supply or which may cause or contribute to a condition in contravention of standards for other classified waters of the State.
b) The concentration of the following substances or chemicals:	Shall not be greater than the limit specified, except where exceeded due to natural conditions:
(1) Arsenic (As)	0.025 mg/l
(2) Barium (Ba)	1.0 mg/l
(3) Cadmium (Cd)	0.01 mg/l
(4) Chloride (Cl)	250 mg/l
(5) Chromium (Cr) Hexavalent	0.05 mg/l
(6) Copper (Cu)	1.0 mg/l
(7) Cyanide (Cn)	0.2mg/l
(8) Fluoride (F)	1.5 mg/l
(9) Foaming Agents[1]	0.5 mg/l
(10) Iron (Fe)[1]	0.3 mg/l
(11) Lead (Pb)	25 mg/l
(12) Manganese (Mn)[1]	0.3 mg/l
(13) Mercury (Hg)	0.002 mg/l
(14) Nitrate (as N)	10.0 mg/l
(15) Phenols	0.001 mg/l
(16) Selenium (Se)	0.02 mg/l
(17) Silver (Ag)	0.05 mg/l
(18) Sulfate (SO_4)	250 mg/l
(19) Zinc (Zn)	5 mg/l
(20) pH Range	6.5-8.5
(21) Aldrin, or 1, 2, 3, 4, 10, 10-hexachloro-1, 4, 4a, 5, 8, 8a-hexahydro-endo-1, 4-exo-5, 8-dimethanonaphthalene.	not detectable[2]
(22) Chlordane, or 1, 2, 4, 5, 6, 7, 8, 8-octachloro-2, 3, 3a, 4, 7, 7a-hexahydro-4, 7-methanoindene.	0.1 ug/l
(23) DDT, or 2, 2-bis- (p-chlorophenyl)-1, 1, 1-trichloroethane and metabolites.	not detectable[2]
(24) Dieldrin, or 6, 7-epoxy aldrin.	not detectable[2]
(25) Endrin, or 1, 2, 3, 4, 10, 10-hexachloro-6, 7-epoxy-1, 4, 4a, 5, 6, 7, 8, 8a-octahydro-endo-1, 4-endo-5, 8-dimethanonaphthalene.	not detectable[2]
(26) Heptachlor, or 1, 4, 5, 6, 7, 8, 8-heptachloro-3a, 4, 7, 7a-tetrahydro-4, 7-methanoindene and metabolites.	not detectable[2]
(27) Lindane and other Hexachlorocyclohexanes or mixed isomers of 1, 2, 3, 4, 5, 6-hexachlorocyclohexane.	not detectable[2]
(28) Methoxychlor, or 2, 2-bis-(p-methoxyphenyl)-1, 1, 1-trichloroethane.	35.0 ug/l
(29) Toxaphene (a mixture of at least 175 chlorinated camphene derivatives).	not detectable[2]
(30) 2, 4-Dichlorophenoxyacetic acid (2, 4-D)	4.4 ug/l
(31) 2, 4, 5-Trichlorophenoxypropionic acid (2, 4, 5-TP) (Silvex)	0.26 ug/l
(32) Vinyl chloride (chloroethene)	5.0 ug/l
(33) Benzene	not detectable[2]
(34) Benzo (a) pyrene	not detectable[2]
(35) Kepone or decachlorooctahydro-1, 3, 4-metheno-2H-cyclobuta (cd) pentalen-2-one (chlordecone).	not detectable[2]

Ground Water

(36)	Polychlorinated biphenyls (PCB) (Arocior)	0.1 ug/l
(37)	Ethylene thiourea (ETU)	not detectable
(38)	Chloroform	100 ug/l
(39)	Carbon tetrachloride (tetrachloromethane)	5 ug/l
(40)	Pentachloronitrobenzene (PCNB)	not detectable
(41)	Trichloroethylene	10 ug/l
(42)	Diphenylhydrazine	not detectable
(43)	bis (2-chloroethyl) ether	1.0 ug/l
(44)	2, 4, 5-Trichlorophenoxyacetic acid (2, 4, 5-T)	35 ug/l
(45)	2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (TCDD)	3.5×10^{-8} ug/l
(46)	2 - Methyl- 4 -chlorophenoxyacetic acid (MCPA)	0.44 ug/l
(47)	Amiben, or 3-amino-2, 5-dichlorobenzoic acid (chloramben)	87.5 ug/l
(48)	Dicamba, or 2-methoxy-3, 6-dichlorobenzoic acid	0.44 ug/l
(49)	Alachlor, or 2-chloro-2', 6'-diethyl-N- (meth oxymethyl)-acetanilide (Lasso)	35.0 ug/l
(50)	Butachlor, or 2-chloro-2', 6'-diethyl-N- (butoxymethyl)-acetanilide (Machete)	3.5 ug/l
(51)	Propachlor, or 2-chlor-N-isopropyl-N-acetanilide (Ramrod)	35.0 ug/l
(52)	Propanil, or 3', 4'-dichloropropionanilide	7.0 ug/l
(53)	Aldicarb, [2-methyl-2-(methylthio) propionaldehyde *O*-(methyl carbamoyl) oxime] and methomyl [1-methylthioacetaldhyde *O*-(methyl-carbamoyl) oxime]	0.35 ug/l
(54)	Bromacil, or 5-broma-3-sec-butyl-6-methluracil	4.4 ug/l
(55)	Paraquat, or 1, 1'-dimethyl-4, 4'-dipyridylium	2.98 ug/l
(56)	Trifluralin, or α, α, α-trifluoro-2, 6-dinitro-, N-dipropyl-p- toluidine (Treflan)	35.0 ug/l
(57)	Nitralin, or 4-(methylsulfonyl)-2, 6-dinitro-N, N-dipropylaniline (Planavin)	35.0 ug/l
(58)	Benefin, or N-butyl-N-ethyl-α, α, α-trifluoro-2, 6- dinitro-p-toluidine (Balan)	35.0 ug/l

Items		*Specifications*
(59)	Azinphosmethyl, or *O, O*-dimethyl-S-4 oxo-1, 2, 3-benzotriazin-3 (4H)-ylmethylphosphorodithioate (Guthion)	4.4 micrograms per liter
(60)	Diazinon, or *O, O*-diethyl O-(2)- isopropyl-4-methyl-6- pyrimidinyl)-Phosphorothioate	0.7 micrograms per liter
(61)	Phorate (also for Disulfoton), or *O, O*-diethyl-*S*-[(ethylthio) methyl]-phosphorodithioate (Thimet R), and disulfoton, or *O, O*-diethyl-S-[(2-ethylthio) ethyl] phosphorodithioate (Di-System R)	not detectable
(62)	Carbaryl, or 1-naphthyl-*N*-methylcarbamate	28.7 micrograms per liter
(63)	Ziram, or zinc salts of dimethyldithiocarbamic acid	4.18 micrograms per liter
(64)	Ferbam, or iron salts of dimethyldithiocarbamic acid	4.18 micrograms per liter
(65)	Captan, or *N*-trichloromethylthio-4-cyclohexene-1 2-dicarboximide	17.5 micrograms per liter
(66)	Folpet, or *N*-trichlor- nethylthiophthalimide	56.0 micrograms per liter
(67)	Hexachlorobenzene (HCB)	0.35 micrograms per liter
(68)	Paradichlorobenzene (PDB) (Also orthodichlorobenzene)	4.7 micrograms per liter
(69)	Parathion (and Methl parathion), or (*O, O*-diethyl-*O*-*p*-nitrophenylphosphorthioate, an methyl parathion, or *O, O*-dimethyl- *O*- *p*- nitrophenylphosphorothioate	1.5 micrograms per liter
(70)	Malathion, or *S*-1, 2-bis (ethoxycarbony 1) ethyl-*O, O*-dimethylphosphorodithioate	7.0 micrograms per liter
(71)	Maneb, or manganese salt of ethylene- bis- dithiocarbamic acid	1.75 micrograms per liter
(72)	Zineb, or zinc salt of ethylene-bis-dithiocarbamic acid.	1.75 micrograms per liter
(73)	Dithane, or zincate of manganese ethylene-bis-dithiocarbemate	1.75 micrograms per liter
(74)	Thiram, or tetramethylthiuramdisulfide	1.75 micrograms per liter
(75)	Atrazine, or 2-chloro-4 thylamino-6-isopropylamino- triazine	7.5 micrograms per liter
(76)	Propazine, or 2-chl s.	

Items	Specifications
(77) Simazine, or 2-chloro-4, 6-diethylamino-S-triazine	75.25 micrograms per liter
(78) Di-n-butylphthalate	770 micrograms per liter
(79) Di (2-ethylhexyl) phthalate (DEHP)	4.2 milligrams per liter
(80) Hexachlorophene, or 2, 2'-methylene-bis (3,4, 6-trichlorophenol)	7 micrograms per liter
(81) Methyl methacrylate	0.7 milligrams per liter
(82) Pentachlorophenol (PCP)	21 micrograms per liter
(83) Styrene	931 micrograms per liter

Notes: [1] Foaming agents determined as methylene blue active substances (MBAS) or other tests as specified by the commissioner.
[2] Combined concentration of iron and manganese shall not exceed 0.3 mg/l.
[3] *Not detectable* means by tests or analytical determinations referenced in section 703.4.

(b) *Class GSA.* (1) The best usage of class GSA waters is as a source of potable mineral waters, for conversion to fresh potable waters, or as raw material for the manufacture of sodium chloride or its derivatives or similar products. Such waters are saline waters found in the saturated zone.

(2) The following quality standards shall be applicable to class GSA waters:

Items	Specifications
wage, industrial wastes or other wastes, lor, taste or odor producing substances, tic pollutants, thermal discharges, dioactive substances or other deleteri- s matter.	None which may impair the waters for use as sources of saline waters for the best usage outlines above or as to cause or contribute to a condition in contravention of standards for other classified waters of the State.

c) *Class GSB.* (1) The best usage of class GSB waters is as a receiving water for lisposal of wastes. Such waters are those saline waters found in the saturated zone hich have chloride concentration in excess of 1,000 milligrams per liter or a total issolved solids concentration in excess of 2,000 milligrams per liter.

(2) The following quality standards shall be applicable to class GSB waters:

Items	Specifications
rage, industrial wastes or other wastes, r, taste or odor producing substances, c pollutants, thermal discharges, loactive substances or other deleter- matter.	None which may be deleterious, harmful, detrimental or injurious to the public health, safety or welfare or which may cause or contribute to a condition in contravention of standards for other classified waters of the State.

(3) Class GSB shall not be assigned to any ground waters of the State unless the ommissioner finds that adjacent and tributary ground waters and the best usage ereof will not be impaired by such classification.

Historical Note

703.6 Effluent standards and/or limitations for discharges to class GA

(a) The effluent standards and/or limitations in schedules I and II of this apply to a discharge from a point source or outlet or any other discharge wi meaning of Environmental Conservation Law, section 17-0501 which discha or may enter the unsaturated or saturated zones.

(b) The department may establish additional effluent standards and/or tions as set forth in section 703.7 of this Part.

(c) The effluent standards and/or limitations shall be incorporated in permits (under Part 750 *et seq.* of this Title) for discharges to ground waters, applicable.

Point-source discharge effluent standards Ground Water

Schedule I

Applicability. The following effluent standards and/or limitations shall to all class GA waters in New York State.

Biological organisms. Coliform and/or pathogenic organisms shall not charged in amounts sufficient to render fresh ground waters detriment to health, safety or welfare.

Chemical characteristics.

	Substance	Maximum allowable concentration in mg/l (unless otherwise noted)
(1)	Aluminum	2.0
(2)	Arsenic	0.05
(3)	Barium	2.0
(4)	Cadmium	0.02
(5)	Chloride	500
(6)	Chromium (Cr) (Hexavalent)	0.10
(7)	Copper	1.0
(8)	Cyanide	0.40
(9)	Fluoride	3.0
(10)	Foaming Agents[1]	1.0
(11)	Iron[2]	0.6
(12)	Lead	0.05
(13)	Manganese[2]	0.6
(14)	Mercury	0.004
(15)	Nickel	2.0
(16)	Nitrate (as N)	20
(17)	Oil and Grease	15
(18)	Phenols	0.002
(19)	Selenium	0.04
(20)	Silver	0.1
(21)	Sulfate	500
(22)	Sulfide	1.0
(23)	Zinc	5.0
(24)	pH Range[3]	6.5-8.5
(25)	Aldrin, or 1, 2, 3, 4, 10, 10-hexachloro-1, 4, 4a, 5, 8, 8a-hexahydro-*endo*-1, 4-exo-5, 8-dimethanonaphthalene	not detectable[4]
(26)	Chlordane, or 1, 2, 4, 5, 6, 7, 8, 8-octachloro-2. 3. 3a 4 7 7a-	0.1 ug/l

REFERENCE 6

02:3408-05/25/91-DT

MARTIN

ATLANTIC TESTING LABORATORIES, LIMITED
Sustaining Member—N.Y.S. Society of Professional Engineers

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June 4, 1987

New York State Department
of Environmental Conservation
50 Wolf Road, Rm. 220
Albany, NY 12233-4015

Attn: Mr. Walter Demick

Re: Monitoring Well Installation
Salina Landfill, Syracuse, NY
Contract No. D001580
Report No. CD666-1-6-87

Gentlemen:

Enclosed are the drilling logs and one monitoring well installation diagram for the referenced project.

This work was performed during the period of May 20-22, 1987, under the supervision of Mr. Martin Brand of NYSDEC.

Please contact our office should you have any questions or comments on the enclosed.

Respectfully submitted,

Patrick Sullivan, Manager
Subsurface Exploration Division

PS/smf

encs.

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD666-1-5-87

CLIENT NYS Dept. of Environmental Conservation
Albany, NY

Location of Boring Per Client

PROJECT Monitoring Well Installation
Salina Landfill, Syracuse, NY

Date, start 5/22/87 Finish 5/22/87

Boring No. SW-3 Sheet 1 of 1

Ground Water Observations

Date	Time	Depth	Casing at

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 4-1/4" I.D.

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER ON 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
			0.0	2.0	AUGER			No Sample	
		1	2.0	4.0	SS	5 7 12 5		f SAND and SILT; ORGANIC MATERIAL (wood, roots)	
	AUGER	2	5.0	7.0	SS	4 6 55 8		Black f SAND and SILT; ORGANIC MATERIAL (wood, roots); Black oil waste material	
		3	10.0	12.0	SS	WOR 2 1		Black oil waste material; WOOD Abandoned hole at 12.0'.	
								Boring Terminated at 12.0'	

f-fine, m-medium, c-coarse
and — 35 — 50%
some — 20 — 35%
little — 10 — 20%
trace — 0 — 10%

NOTE: WOR denotes weight of rods.

SS—SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Gary Cambridge, John Saarinen

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD666-1-5-87

CLIENT NYS Dept. of Environmental Conservation
Albany, NY

Location of Boring: Per Client

PROJECT Monitorng Well Installation
Salina Landfill, Syracuse, NY

Date, start 5/21/87 Finish 5/21/87

Boring No. SW-2 Sheet 1 of 1

Casing Hammer: Wt ____ lbs. Fall ____ in.

Sampler Hammer: Wt 140 lbs. Fall 30 in.

Casing ____

Ground Elev. ____

H.S. Auger 4-1/4" I.D.

Ground Water Observations

Date	Time	Depth	Casing at
5/21/87	-	4.0'	10.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER OD 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	13		Reddish-Brown f SAND; trace SILT; trace GRAVEL and ORGANIC MATERIAL (roots)	
						23			
						37			
						19			
	AUGER	2	2.0	4.0	ss	4		Reddish-Brown f SAND; trace SILT; trace GRAVEL (moist)	
						8			
						23			
						17			
		3	5.0	7.0	ss	3		SILT; trace f SAND; Decayed WOOD (wet)	
						4			
						2			
						2			
		-	7.0	10.0	AUGER			Petroleum saturated soil.	
								Boring Terminated at 10.0'	
								NOTE: Abandoned hole as per instructions of inspector.	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
— PISTON TYPE

DRILLERS Gary Cambridge, John Saarinen

BORING No. SW-1 PROJECT No. CD666 SHEET 2 OF 2

DEPTH	CASING BLOWS/FT.	SAMPLE No.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER / SAMPLER O.D.	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PEN.
		9	16.0	18.0	ss	2		Clayey SILT (saturated)	
						2			
						2			
						1			
								Boring Terminated at 18.0'	
								NOTE: See attached monitoring well installation diagram.	

f - fine sand - 35-50%
m - medium some - 20-35%
c - coarse little - 10-20%
trace - 0-10%

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ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD666-1-5-87

CLIENT NYS Dept. of Environmental Conservation
Albany, NY

Location of Boring Per Client

PROJECT Monitoring Well Installation
Salina Landfill, Syracuse, NY

Date, start 5/20/87 Finish 5/20/87

Boring No. SW-1 Sheet 1 of 2

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.

Casing _____

Ground Elev. _____

H.S. Auger 4-1/4" I.D.

Ground Water Observations

Date	Time	Depth	Casing at
5/20/87	-	4.0'	15.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER ON 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
		1a	0.0	0.5	ss	5	0.5'	6" TOPSOIL	
		1b	0.5	2.0		8		Grey f SAND and SILT	
						8			
						8			
		2	2.0	4.0	ss	5		Grey f SAND and SILT; ORGANIC MATERIAL	
						6			
						11			
						5			
		3	4.0	6.0	ss	14		Similar Soils (wet)	
						10			
						5			
						3	6.5'		
		4	6.0	8.0	ss	1		mf SAND; ORGANIC MATERIAL with CLAY layer at 6.5' - 7.5'	
						2			
						3	7.5'	(saturated)	
						4			
	AUGER	5	8.0	10.0	ss	7		CLAY, SILT, ORGANIC MATERIAL (saturated)	
						8			
						7			
						10			
		6	10.0	12.0	ss	3	—	~~Similar Soils~~ (saturated)	
						1			
						5			
						7			
		7	12.0	14.0	ss	2		CLAY; trace SILT (saturated)	
						1			
						2			
						1			
		8	14.0	16.0	ss	2		Similar Soils (saturated)	
						2			
						2			
						3			

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Gary Cambridge, John Saarinen

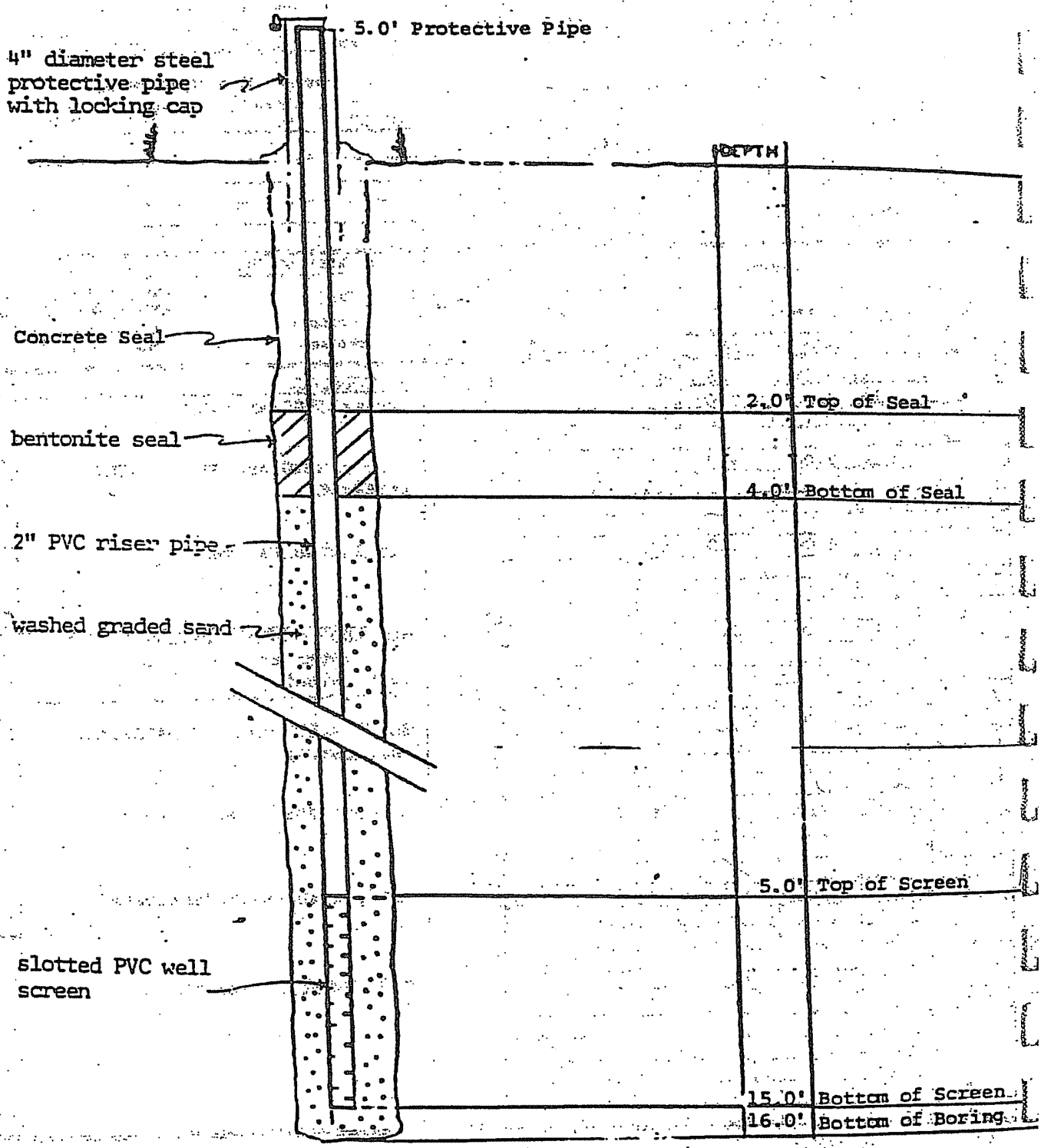
MONITORING WELL INSTALLATION DETAIL

PROJECT: Salina Landfill
Syracuse, New York

PROJECT NO. CD666-87

CLIENT: NYS Dept. of Env. Conservation
Albany, New York

WELL NO. SW-1



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SALINA LANDFILL - SOILS/WASTE

Sampling Points:

SW-1 (upgradient monitoring well near NYS Thruway)

SH734036-01-01	5.5-7.5'	8080,8270 (BNAs/PCBs)
SH734036-01-02	2.0-4.0'	TCDF

SW-2 (borehole along Ley Creek, eastern location)

SH734036-02-01	7.0-10.0'	HSL, TCDF
SH734036-02-02	2.0-4.0'	TCDF
SH734036-02-03	5.0-7.0'	8080,8270 (BNAs/PCBs)

SW-3 (borehole, southwest corner of landfill)

SH734036-03-01	2.0-4.0'	8080,8270 (BNAs/PCBs)
SH734036-03-02	10.0-12.0'	HSL,TCDF

SALINA LANDFILL - SOILS/WASTE

	SH734036-01-02 (SW-1, 2-4')
Dibenzofurans (ng/g)	
tetra (total) TCDF	ND
2,3,7,8	ND
penta	ND
hexa	ND
hepta	ND
octa	ND

SALINA LANDFILL - SOILS/WASTE

SH734036-01-01

(SW-1, 5.5-7.5')

Semi-volatiles(ug/kg)		Pesticides/PCBs(ug/kg)
bis(2-ethylhexyl)phthalate	6200	none detected

SALINA LANDFILL - SOILS/WASTE

	SH734036-02-02 (SW-2, 2-4')
Dibenzofurans (ng/g)	
tetra (total) TCDF	0.029
2,3,7,8 Conf.Sp-2331	
penta	ND
hexa	0.170
hepta	0.310
octa	0.140

SALINA LANDFILLS - SOILS/WASTE

SH734036-02-01

(SW-2, 7-10')

Volatiles (ug/kg)	
methylene chloride	110 B
acetone	1600
2-butanone	290
toluene	31
chlorobenzene	58
xylenes (totals)	30

Semi-volatiles (ug/kg)	
1,4-dichlorobenzene	1300 J
naphthalene	1200 J
2-methynaphthalene	1400 J
acenaphthalene	980 J
acenaphthene	1700 J
dibenzofuran	1200 J
fluorene	2800 J
n-nitrosodiphenylamine	2400 J
phenanthrene	13000
anthracene	3700 J
di-n-butylphthalate	1000 J
fluoranthene	12000
pyrene	13000
benzo(a)anthracene	4600 J
bis(2-ethylhexyl) phthalate	21000
chrysene	7500
di-n-octyphthalate	690 J
benzo(b)fluoranthene	8200 J
benzo(k)fluoranthene	8200 J
benzo(a)pyrene	5400 J
indeno(1,2,3-cd)pyrene	3300 J
dibenz(a-h)anthracene	1100 J
benzo(g-h-i)perylene	3200 J

Dibenzofurans (ng/g)	
tetra (total) TCDF	0.018
2,3,7,8 Conf. SP-2331	
penta	0.054
hexa	0.054
hepta	0.098
octa	0.170

Pesticides/PCBs (ug/kg)	
Aroclor-1242	270000

Tentative ID Compounds(ug/kg)	
BNA fraction (total)	676000
VOA unk. hydrocarbons	175

Metals (mg/kg)	
aluminum	7940
arsenic	13
barium	(163)
cadmium	29
calcium	51300
chromium	4060
cobalt	(9.5)
copper	1420
iron	44200
lead	378
magnesium	12600
manganese	430
mercury	0.8
nickel	1480
potassium	(822)
silver	24
tin	137
vanadium	(26)
zinc	1010

SALINA LANDFILL - SOILS/WASTE

SH734036-03-01

(SW-3, 2-4')

Semi-volatiles (ug/kg)	
phenanthrene	2100 J
anthracene	890 J
fluoranthene	3100 J
pyrene	2900 J
butylbenzylphthalate	1600 J
benzo(a)anthracene	1500 J
bis(2-ethylhexyl) phthalate	8500
chrysene	1700 J
di-n-octylphthalate	650 J
benzo(b)fluoranthene	2300 D,J
benzo(k)fluoranthene	2300 D,J
benzo(a)pyrene	1500 J
indeno(1,2,3-cd) pyrene	1200 J
dibenz(a-h)anthracene	460 J
benzo(g-h-i)perylene	1200 J

Pesticides/PCBs (ug/kg)

none detected

Tentative ID Compounds(ug/kg)

BNA fraction (total) 15800

SALINA LANDFILL - SOILS/WASTE

SH734036-02-03

(SW-2, 5-7')

Semi-volatiles (ug/kg)

acenapthene	680 J
dibenzofuran	500 J
fluorene	1100 J
phenenthrene	3400 J
anthracene	1700 J
fluoranthene	4500
pyrene	3800 J
benzo(a)anthracene	2200 J
bis(2-ethylhexyl) phthalate	21000
chrysene	2100 J
benzo(b)fluoranthene	2800 D,J
benzo(k)fluoranthene	2800 D,J
benzo(a)pyrene	2100 J
indeno(1,2,3-cd) pyrene	1100 J
dibenz(a-h)anthracene	470 J
benzo(g-h-i)perylene	1200 J

Pesticides/PCBs (ug/kg)

Aroclor-1242	11000

Tentative ID Compounds(ug/kg)

BNA fraction (total) 40000

SALINA LANDFILL - SOILS/WASTE

SH734036-03-02

(SW-3, 10-12')

Volatiles (ug/kg)

methylene chloride	56 B
acetone	700
2-butanone	150
chlorobenzene	7.2 J
xylenes (total)	32

Semi-volatiles (ug/kg)

di-n-butylphthalate	79000
bis(2-ethylhexyl) phthalate	23000

Pesticides/PCBs (ug/kg)

Aroclor-1242	4900

Metals (mg/kg)

aluminum	5570
barium	(140)
cadmium	11
calcium	28200
chromium	430
copper	674
iron	91200
lead	180
magnesium	8650
manganese	749
mercury	0.6
nickel	541
potassium	(685)
tin	116
vanadium	(15)
zinc	1560

Dibenzofurans (ng/g)

tetra (total)TCDF	0.029
2,3,7,8	ND
penta	ND
hexa	ND
hepta	ND
octa	ND

Name ERCO/ENSECO

Inc NYS DEC

Sample Number SH73403602 01

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 6-10-87

Date Analyzed 6-26-87; 6-29-87

Conc/Dil Factor 10

Percent Moisture (decanted) 52 pH=7

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or (ug/Kg) (Circle One)
319-84-6	Alpha-BHC	80U
319-85-7	Beta-BHC	80U
319-86-8	Delta-BHC	80U
58-89-9	Gamma-BHC (Lindane)	80U
76-44-8	Heptachlor	80U
309-00-2	Aldrin	80U
1024-57-3	Heptachlor Epoxide	80U
959-98-8	Endosulfan I	80U
60-57-1	Dieldrin	160U
72-55-9	4-4'-DDE	160U
72-20-8	Endrin	160U
33213-65-9	Endosulfan II	160U
72-54-8	4 4'-DDD	160U
1031-07-8	Endosulfan Sulfate	160U
50-29-3	4 4'-DDT	160U
72-43-5	Methoxychlor	800U
53494-70-5	Endrin Ketone	160U
57-74-9	Chlordane	800U
8001-35-2	Toxaphene	1600U
12674-11-2	Aroclor-1016	800U
11104-28-2	Aroclor-1221	800U
11141-16-5	Aroclor-1232	800U
53469-21-9	Aroclor-1242	270,000
12672-29-6	Aroclor-1248	800U
11097-69-1	Aroclor-1254	800U
11096-82-5	Aroclor-1260	800U

V_t = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s NA or W_s 14.9 V_t 20,000 V_t 2.0

Name Enseco Erco Laboratory
NY DEC

Sample Number
SH7340326-01-C

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.		C_8H_{16} isomer	BNA	214	24000
2.		$C_{14}H_{30}$ isomer	BNA	672	20000
3.		$C_{15}H_{32}$ isomer	BNA	765	17000
4.		$C_{16}H_{34}$ isomer	BNA	836	31000
5.		Unknown hydrocarbon	BNA	974	20000
6.		$C_{19}H_{40}$ isomer	BNA	1021	43000
7.	6484-52-0	Nitric Sulfur (S2)	BNA	1239	200000
8.		$C_{18}H_{32}$ isomer	BNA	1276	19000
9.		C4-Pregnane Horizane isomer	BNA	1345	50,000
10.		Unknown	BNA	1419	30,000
11.		Unknown	BNA	1524	20,000
12.	630-01-3	Hexacosane	BNA	1544	23,000
13.	593-49-7	Heptacosane	BNA	1593	25,000
14.		Unknown alkane	BNA	1639	31,000
15.		Unknown alkane	BNA	1696	39,000
16.		Unknown alkane	BNA	1751	25,000
17.		Unknown steroid ($C_{27}H_{48}O$ isomer)	BNA	1811	20,000
18.		Unknown alkane	BNA	1824	33,000
19.		Unknown steroid ($C_{27}H_{46}O$ isomer)	BNA	1849	20,000
20.		Unknown Steroid ($C_{29}H_{50}$ isomer)	BNA	2040	30,000
21.		Unknown hydrocarbon	VOA	1095	31
22.		Unknown hydrocarbon	VOA	1284	34
23.		Unknown hydrocarbon	VOA	1297	41
24.		Unknown hydrocarbon	VOA	1601	15
25.					
26.					
27.					
28.					
29.					
30.					

20 (X

00001

Date 6-23-87

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

QC Report No. 59091

Sample Numbers

Client No.	Lab ID No.	Client No. (NYS DEC)	Lab ID No.
87-006919	59091-01D	SH734-036-D3-02 Dpliate	
87-006916	59091-01	SH734-036-03-02	
87-006917	59091-01S	SH734-036-0302 MS	
87-006915	59091-02	SH734-036-02-01	
87-006925	[59091-99]	Ercs Blank	

Comments: 2 LOW SOILS FOR TOTAL METALS AND CYANIDE ANALYSIS.
SERIAL DILUTION OF SAMPLE 59091-02 IS IDENTIFIED AS [59091-99]

ICP Interelement and background corrections applied? Yes X No ___.
If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:

NR Form - not required by contract at this time
Value - if the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
R - Indicates spike sample recovery is not within control limits.
N - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

Narrative

WI QC # 59091

Prep # N/A

Comments; Nickel, Selenium, Silver and Cyanide are flagged for spike recoveries. Cadmium, Iron, and Lead are flagged for duplicate precision. The sample is a mixture of mud and clay and contains small rocks. A reprep for furnace, ICP and Cyanide was not done because it was determined that the spike recoveries and duplicate analyses results were due to the sample matrix and not to prep procedures.

Lab Manager LW

00003

Form I

Lab ID No. 59091-01

Date 6-23-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

QC REPORT NO. 59091

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	5570	P	13.	MAGNESIUM	8650	P
2.	ANTIMONY	21U	P	14.	MANGANESE	749	P
3.	ARSENIC	10U	F	15.	MERCURY	0.6	CV
4.	BARIUM	[140]	P	16.	NICKEL	541	P R
5.	BERYLLIUM	1U	P	17.	POTASSIUM	[685]	P
6.	CADMIUM	11	P X	18.	SELENIUM	5U	F R
7.	CALCIUM	28200	P	19.	SILVER	4U	P R
8.	CHROMIUM	430	P	20.	SODIUM	898U	P
9.	COBALT	5U	P	21.	THALLIUM	10U	F
10.	COPPER	674	P	22.	TIN	116	P
11.	IRON	91200	P X	23.	VANADIUM	[15]	P
12.	LEAD	180	F X	24.	ZINC	1560	P
	Cyanide	1.1	AS R		Percent [illegible] (%)	50	

Footnotes: For reporting results to EPA, standard result qualifiers ar used as defined on Cover Page. Additional flags or footnot explaining results are encouraged. Definition of such flag must be explicit and contained on Cover Page, however.

Comments: SAMPLE NOS. 87-006916 87-006917 & 87-006919
Used value reported at an additional 10X dilution

Lab Manager [illegible]

California Analytical Laboratory

Enseco

June 19, 1987
Lab No. 29565
Received: 29-May-87
Project ID: 4195

Dallas Wait
ERCO
205 Alewife Brook Parkway
Cambridge, MA 02138

Four soil samples were received under chain of custody in eight ounce glass jars to be analyzed for total Cl_4-Cl_8 furans only.

CAL I.D.	Sample I.D.
29565-1	SH734036-01-02 21-May-87
-2	SH734036-02-02 22-May-87
-3	SH734036-03-02 22-May-87
-4	SH734036-02-01 21-May-87

RESULTS

See attached data sheets.

Michael J. Miille, Ph.D.
Vice President

Robert S. Mitzel
GC/MS Lab Supervisor

mbw

2544 Industrial Boulevard
West Sacramento, California
916/372-1393 Facsimile: 916 372-1059

2378-TCDD DATA REPORT
ENSECO California Analytical Lab
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: ENSECO California Analytical Lab
Case No. 29565
Batch/Shipment No.

Report Date: 6/17/87
Column: SP-2331

Cal Lab ID	Sample Number	C/U	Aliquot Wet Wt. (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	304/306	316/318	304	306	316	318	Comments
29565-3MB	METHOD BLANK	Y	10.00	ND	0.028	5	06/12/87	10:29:00	-	0.80	-	-	479846	601890	
29565-2	SH734036-02-02	Y	10.00	ND	0.16	5	06/12/87	11:12:00	-	0.81	-	-	82102	101586	
29565-4	SH734036-02-01	Y	10.00	ND	0.055	5	06/12/87	11:31:00	-	0.80	-	-	356729	446636	

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
NS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
CU = Clean Up
FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction
MPC = Maximum Possible Concentration

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

Prepared by: [signature]

Approved by: [signature]

Date: 6/17/87

FORM B-1

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 29565

CLIENT ID: SH734036-01-02 Data Analyzed: 6/8/87 Column: DB-5

CAL ID: 29565-1 Weight: 10.42G

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.011
penta	ND	0.015
hexa	ND	0.013
hepta	ND	0.025
octa	ND	0.092

% Recovery 13C-2378-TCDF = 59%

ND = Not Detected

PREPARED BY: gf

APPROVED BY: BSM DATE: 6/17/87

Enseco

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 29565

CLIENT ID: SH734036-02-01 Date Analyzed: 6/9/87 Column: DB-5

CAL ID: 29565-4 Weight: 9.8G

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	0.18	-
2378-Confirmation: SP-2331		0.055
penta	0.054	-
hexa	0.054	-
hepta	0.098	-
octa	0.17	-

% Recovery 13C-2378-TCDF = 36%

ND = Not Detected

PREPARED BY: [signature]

APPROVED BY: BSM DATE: 6/17/87

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 29565

CLIENT ID: SH734036-02-02 Date Analyzed: 6/8/87 Column: DB-5

CAL ID: 29565-2 Weight: 10.01G

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)	
tetra (total)	0.029	-	
2378-Confirmation: SP-2331		0.18	
penta	ND	0.033	*
hexa	0.17	-	
hepta	0.31	-	
octa	0.14	-	

& Recovery 13C-2378-TCDF = 38%

ND = Not Detected

* Chemcial Interference

PREPARED BY: [signature]

APPROVED BY: [signature] DATE: 6/17/87